

78711-M-3

INSTRUCTION MANUAL FOR  
ADVANCED FILM-VIEWING LIGHT TABLE  
WITH TRANSLATING MICROSCOPE CARRIAGE  
AND HIGH-INTENSITY TRACKING LIGHT SOURCES

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Project No. Serial No.

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|----|-------|-----|--|
| 37 | -     | 42  | No letter designation is given to Interim Progress Reports.                        |
| 37 | - R - | 42  | "R" is designated to all technical reports completing a task on a current project. |
| 37 | -     | F   | "F" is assigned to all Final Report designations.                                  |
| 53 | - M - | 46  | "M" designation is assigned to all equipment operation and maintenance manuals.    |
| P  | -     | 612 | "P" is assigned to all proposals.  |
| S  | -     | 24  | "S" describes Special Publications.  |

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DESIGNED AND BUILT BY

JULY 1966

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I. DESCRIPTION

This table provides an 11" by 40" illuminated area for use in viewing 9-1/2" to 2-3/4" (i.e., 70mm) film inclusive, or dual rolls of either 70mm or 5" film, concurrently. A movable microscope carriage affords translation of a microscope with a graduated microscope movement and tracking light sources over the viewing area. The table can be horizontally tilted for operator convenience.

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## II. SETUP OF LIGHT TABLE FOR OPERATION

### A. SUPPORT OF THE LIGHT TABLE

The table must be leveled on a rigid support. Leveling will accomplish the freest operation of the microscope carriage; the rigid support will make possible the most accurate results when making a measurement. Leveling of the table is accomplished by adjusting the height of the four leveling pads (#1 Figure 1). Loosen the screw (#2 Figure 1), raise the table to the desired point, and tighten the screw securely.

### B. HEIGHT ADJUSTMENT OF THE LIGHT TABLE

An increase in height of two inches can be gained by lowering the leveling pads (#1 Figure 1). (See above paragraph for height adjustment.)

### C. TILTING THE LIGHT TABLE

The table can be tilted from  $0^{\circ}$  to  $8^{\circ}$  with respect to the horizontal by proper adjustment of the leveling pads (#1 Figure 1). For maximum tilt the front leveling pads must be fully retracted and the rear pads fully extended. (For adjustment of the pads, see paragraph II. A. above.)

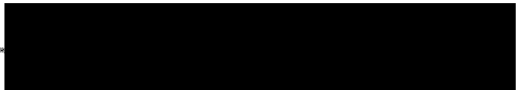
CAUTION: When the table is tilted, the microscope carriage is free to roll if the Y-Y brakes (#3 Figure 1) are not locked. The microscope carriage will be damaged if it falls free and strikes the stops (#4 Figure 1).

### D. APPLYING POWER TO THE LIGHT TABLE

1. Connect the Master Control Panel (#1 Figure 1) to the Master Control Panel (#2 Figure 2) and to the proper connector in the side of the light table.
2. Connect the 120-volt 60-cycle power cords (#3 Figure 2) to the light table and the power line.

WARNING: THIS TABLE TO BE USED ONLY WITH 120 VAC 60-CYCLE WITH A 3RD GROUND WIRE. BE SURE THE TABLE IS ALWAYS ELECTRICALLY GROUNDED! ! !

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3. Raise "Power On" switch to turn table on.
  4. Allow the table to warm up for 5 minutes with light source at maximum brightness.

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### III. OPERATION OF LIGHT TABLE

#### A. LOADING OF LIGHT TABLE

1. Turn the bottom film arm transport plate handle (#5 Figure 1) counterclockwise until the bottom film transport plate strikes the inner stop. Lock the brake (#6 Figure 1).
2. Turn the top film arm transport plate handle (#7 Figure 1) clockwise until the top film arm transport plate strikes the inner stop. Lock the brake (#8 Figure 1).
3. Position the center shade (#1 Figure 5) in the center of the viewing area by first loosening the thumb screw (#2 Figure 5) at each end of the shade and then sliding the shade to the correct position. Tighten the thumb screws.
4. Install center film arms (#3 Figure 5).
5. The film spools may now be loaded by retracting the spring loaded spool holders (#4 Figure 5).

#### B. LOADING 5" FILM SPOOLS

1. Turn the bottom film arm transport plate handle (#5 Figure 1) clockwise until the bottom film transport plate strikes the outer stop. Lock the brake (#6 Figure 1).
2. Turn the top film arm transport plate handle (#7 Figure 1) counterclockwise until the top film arm transport plate strikes the outer stop. Lock the brake (#8 Figure 1).
3. Position the center shade (#1 Figure 5) in the center of the viewing area by first loosening the thumb screw (#2 Figure 5) at each end of the shade and then sliding the shade to the correct position. Tighten the thumb screws.
4. Install center film arms (#3 Figure 5).
5. The film spools may now be loaded by retracting the spring loaded spool holders (#4 Figure 5).

#### C. LOADING 9.5" FILM SPOOLS


1. Turn the bottom film arm transport plate handle (#5 Figure 1)



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clockwise until the bottom film transport plate strikes the outer stop. Lock the brake (#6 Figure 1).

2. Turn the top film arm transport plate handle (#7 Figure 1) until the inner edge of the film arm (#5 Figure 5) is in line with the 9.5" film marker (#7 Figure 3). Lock the brake (#8 Figure 1).
3. Position the center shade (#1 Figure 1) at the extreme upper edge of the viewing area by loosening the thumb screws (#2 Figure 5) at each end of the shade and sliding the shade to the correct position.
4. Remove the center film arms (#3 Figure 5), if installed.
5. The film spools may now be loaded by retracting the spring loaded spool holders (#4 Figure 5).

CAUTION: When Viewing 9.5" Film, The Direction Switch (#5 Figure 3) Must Be In The  (Same Direction).

#### D. LOADING OTHER SIZE FILM

This table is designed to accommodate film widths ranging from 70mm to 9.5". However, when film sizes other than those mentioned above are viewed, the operator must be thoroughly familiar with the operation of the table and the damage that can be done if certain earlier criteria are not followed.

#### E. MASTER CONTROL CONSOLE

The Master Control Console must be used with the table as all programming emanates from it. A brief description of the programming functions is as follows:

CAUTION: NEVER HAVE THE POWER PLUG CONNECTED TO THE LIGHT TABLE WITHOUT THE MASTER CONTROL CONSOLE BEING CONNECTED! ! !

1. The "Power" switch is used to turn the table ON and OFF (#3 Figure 3).
2. The "Bottom Group" switch controls the bottom film transporting system (#4 Figure 3).

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3. The "Direction" switch controls and indicates the mode of film travel (#5 Figure 3).
4. The "Top Group" switch controls the top film transporting system (#7 Figure 3).

The film transporting mechanism allows the following options:

1. Two rolls of 70mm or 5" film can be transported in the same direction.
2. Two rolls of 70mm or 5" film can be transported in opposite directions.
3. Transporting the top roll of film while the bottom roll of film does not move.
4. Transporting the bottom roll of film while the top roll of film does not move.

Located immediately below the programming switches are another set of controls for controlling the High-Intensity Tracking Light Sources.

"WHEN FIRST TURNING ON THE HIGH-INTENSITY TRACKING LIGHT SOURCES, ALLOW 5 MINUTES OF WARM-UP TIME PRIOR TO OPERATION."

The lower alphabetical character always controls the lower numerical number on the Selector switch (i. e., Selector switch position 1-3, then Dimmer A controls lamp number 1 and Dimmer B controls lamp number 3). When the Selector switch is positioned on 2, then Dimmer A controls the intensity.

On the vertical portion of the panel the controls for applying braking action to the supply reels are located. The controls have been labeled to correspond with their respective functions when the Control Console is facing the operator and the operator is facing the viewing surface of the Light Table from the long axis. The control labeled "DIM" is used to vary the intensity of the large light source. A clockwise rotation increases the lamp intensity. WHEN FIRST TURNING ON THE TABLE, ALLOW 5 MINUTES OF WARM-UP TIME PRIOR TO OPERATION.

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## F. FUSES

There are four electrical fuses protecting the Light Table.

1. The main power fuse is a 3 Amp, 125 V fuse and is located adjacent to the Power Connector on the back side of the table housing.
2. There is a 1/2 Amp, 100 VDC internal line fuse. It is located on the back of the Control Console adjacent to the Control Cable connector.
3. The High-Intensity Tracking Light Sources are protected by two 1 Amp, 120 VAC fuses located inside the Control Console and mounted on a Littlefuse terminal board.

CAUTION: THIS TABLE CONTAINS HIGH VOLTAGE AND SHOULD BE SERVICED BY QUALIFIED PERSONNEL ONLY.

## G. VIEWING SURFACE SHADES

The Light Table is equipped with shades. The function of the shades is to mask out the area of light source not being used. When film is viewed which does not cover the entire viewing surface, the shades (#5 Figure 5) may be drawn by loosening the thumb screws (#6 Figure 5) and sliding the shades to the desired position.

When two rolls of film are viewed, the center strip between the two rolls of film may be shaded by using the center shade (#1 Figure 5). This can be done by loosening the thumb screws (#2 Figure 5) and sliding the shade to the desired position and then tightening the thumb screws.

## H. FILM TRANSPORTING MECHANISM

The film drive mechanism is hand operated by means of either of two cranks (#9 Figure 1) on the front side.

Although the film drive mechanism is hand operated, the clutch-brake units operate only when power is applied to the desired unit. A clockwise rotation of one of the front hand wheels (#9 Figure 1) will transport film from left to right when operating with the "DIRECTION" switch in the  $\Rightarrow$  same mode. When the "DIRECTION" switch is changed  $\Leftarrow$ , the

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direction of the top roll of film changes as indicated by the direction markers on the switch. The complete film direction can be reversed by reversing the direction of the hand crank to counterclockwise.

A two-speed mechanical gear shift (#10 Figure 1) is provided to switch the film transporting mechanism from low speed to high speed. When the gear shift rod (#10 Figure 1) is "pulled out," the film drive mechanism is in the "fast" mode.

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#### IV. TRANSLATING MICROSCOPE CARRIAGE ASSEMBLY

A Translating Microscope Carriage Assembly is provided with the table. The micrometer is graduated to read out 1mm on the flat scale, 1/100mm on the drum scale, and 1/1000mm on the vernier drum scale.

##### A. MICROSCOPE ADAPTERS

The table is equipped to accept 3 separate microscopes when using the appropriate adapter.

- STATINTL 1. [REDACTED] stereomicroscope used with adapter #1 Figure 4.
- STATINTL 2. [REDACTED] used with adapter #2  
Figure 4.
- STATINTL 3. [REDACTED] stereoscopic microscope used with adapter #3 Figure 4.

All microscope adapters are mounted to the carriage assembly by slipping the adapters over the post on the Microscope Carriage Assembly and securing the adapter to the Carriage Assembly by tightening hand screw #4 Figure 4.

##### B. AUXILIARY FILM FLATTENER

An auxiliary plate glass film flattener has been added under the Microscope Carriage Assembly to remove the camber from the film under the viewing area of the microscope. The film should be placed under this glass flattener and on top of the viewing surface glass.

"WHEN TRANSPORTING FILM, THE PLATE GLASS MUST BE RAISED OFF THE FILM."

##### C. HIGH-INTENSITY TRACKING LIGHT SOURCES

Slaved to the Microscope Carriage Assembly are 3 High-Intensity Tracking Light Sources. The linkage between the 2 subassemblies is designed such that the track light source/s can be positioned beneath the separate objectives and/or rhomboids of a microstereoscope or beneath the single objective of a stereomicroscope in conventional or 90° viewing modes.

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V. ILLUSTRATIONS

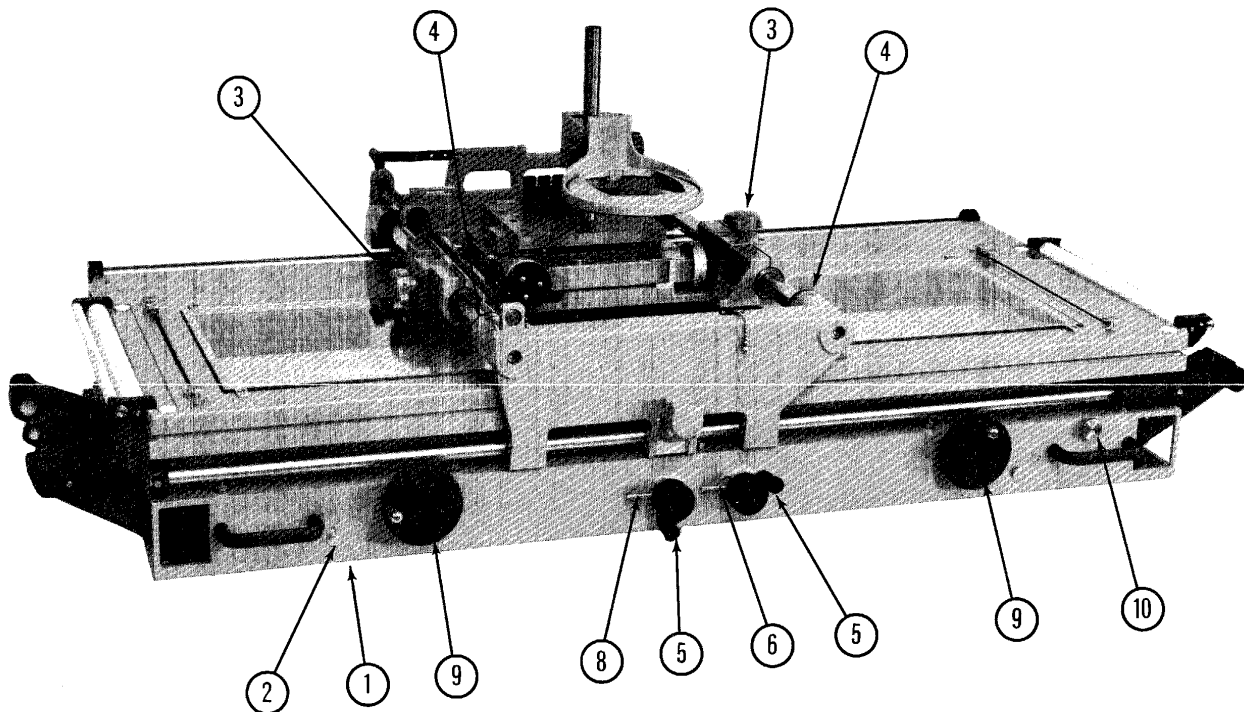


FIG. 1 ASSEMBLY - LIGHT TABLE

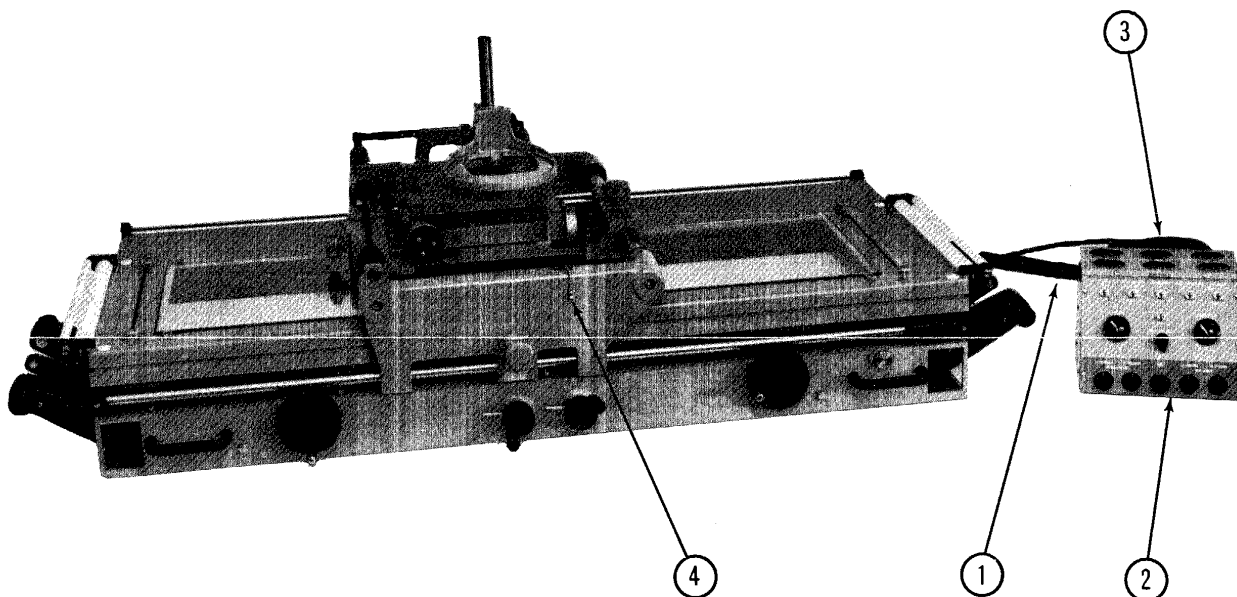


FIG. 2 ASSEMBLY - LIGHT TABLE AND CONTROL CONSOLE



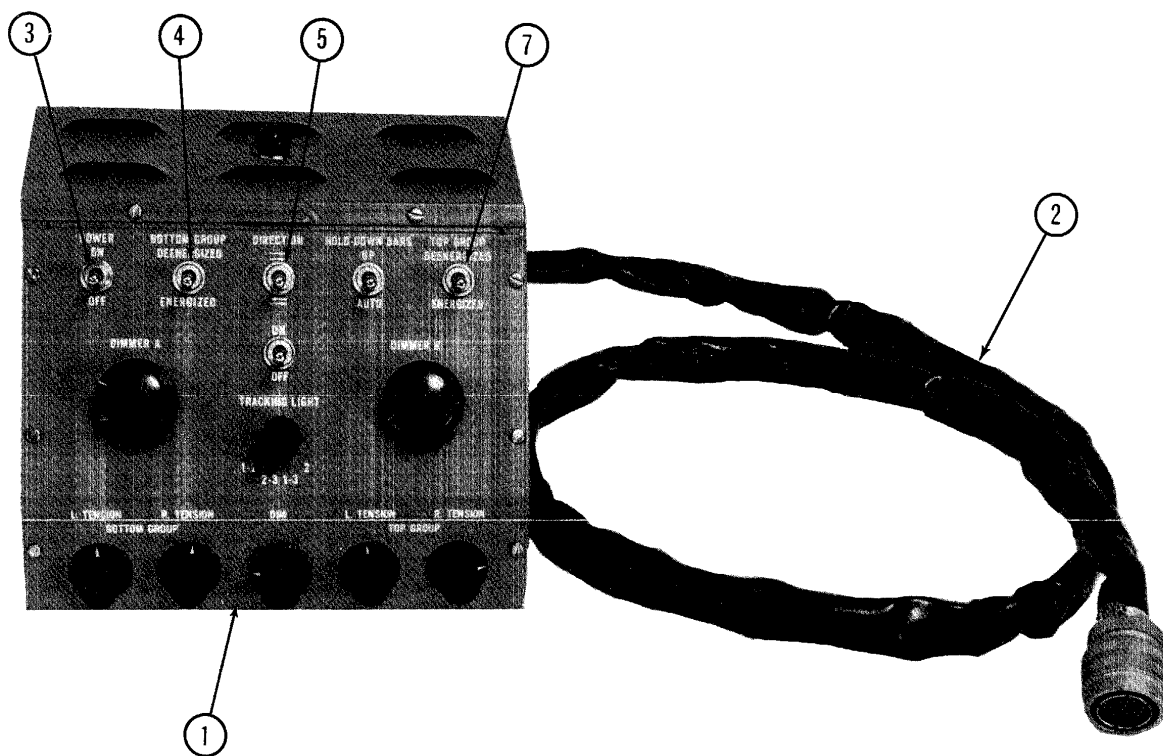


FIG. 3 CONTROL CONSOLE AND CONTROL CABLE

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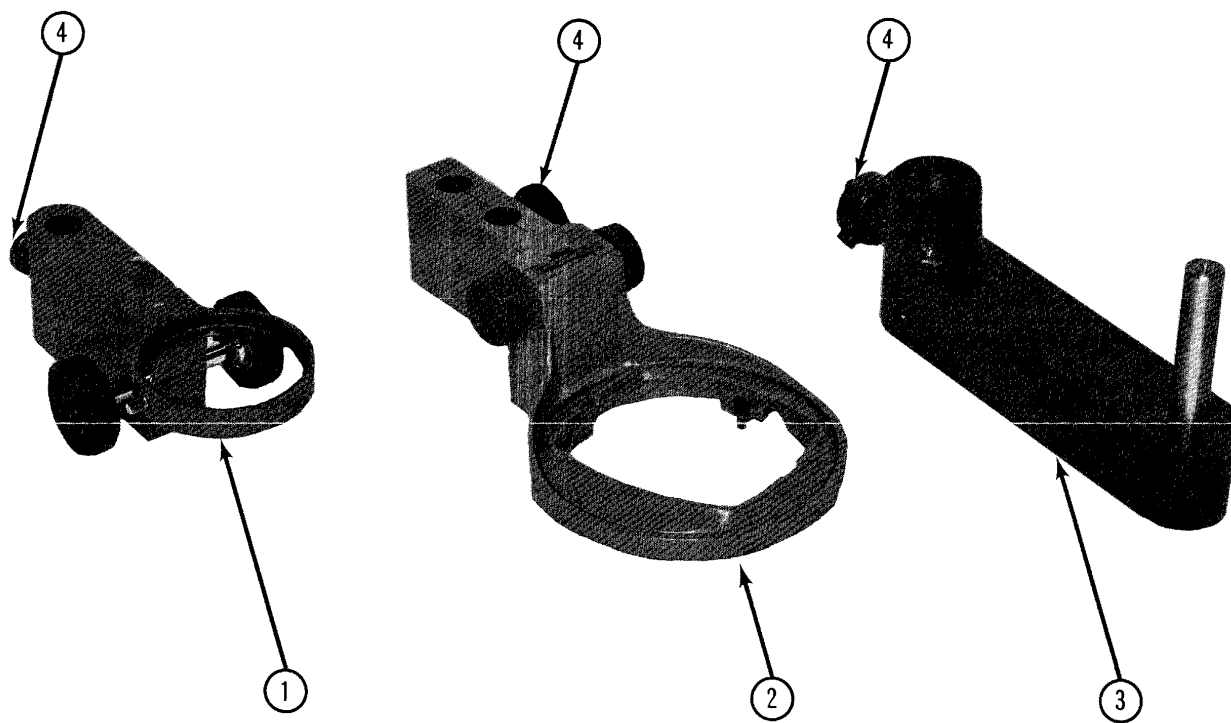


FIG. 4 MICROSCOPE ADAPTERS

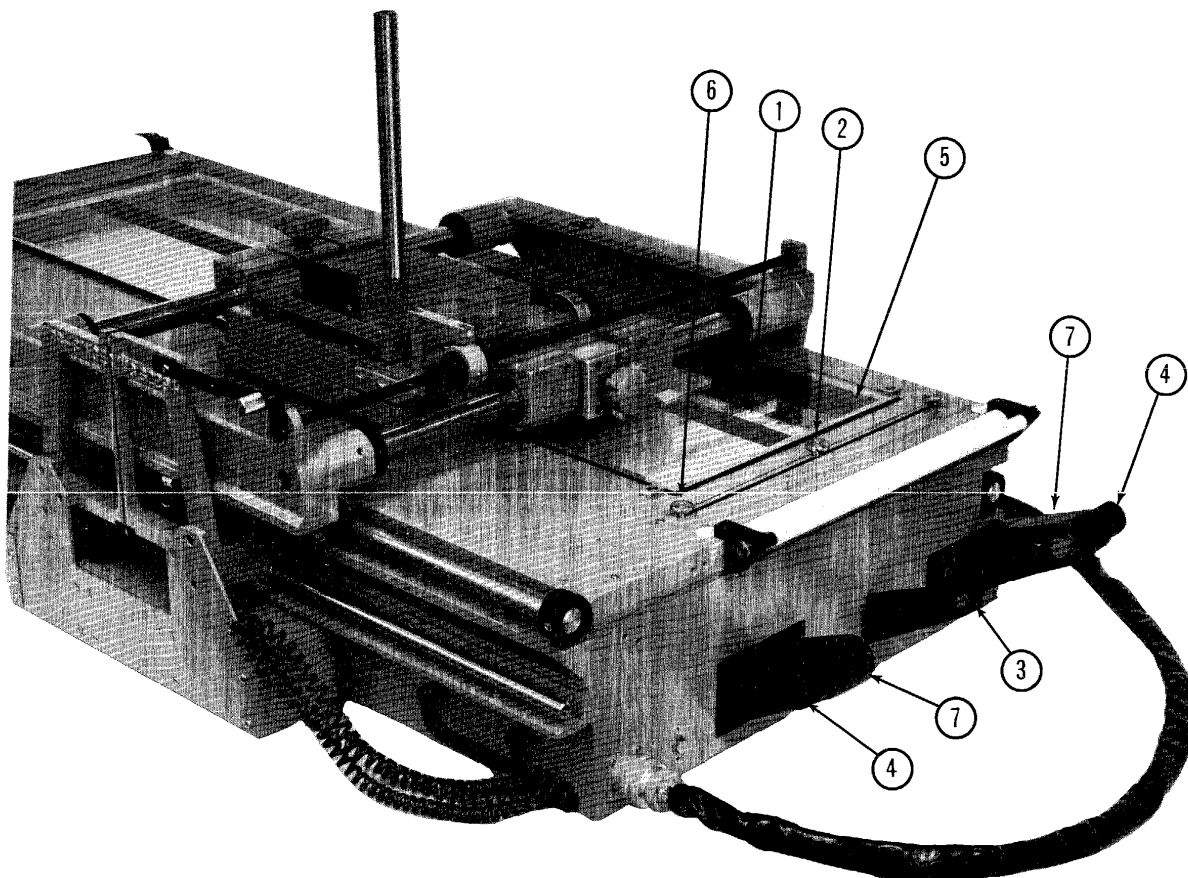


FIG 5 LIGHT TABLE - DETAILS

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VI. SCHEMATIC

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